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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,704	02/26/2002	Gabor Devenyi	01W120	6376

7590 02/22/2007
Raytheon Company
Bldg. EO/E01/E150
2000 East El Segundo Boulevard
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El Segundo, CA 90245

EXAMINER

PILKINGTON, JAMES

ART UNIT	PAPER NUMBER
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3682

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/084,704	DEVENYI, GABOR	
	Examiner	Art Unit	
	James Pilkington	3682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the Appeal Brief filed on 11/09/2006, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Richard Ridley 

RICHARD RIDLEY
SUPERVISORY PATENT EXAMINER

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 3682

3. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re clm 19, it is unclear to the examiner how the spring pin is "preloaded." What structure provides for the preloading of the spring? How is the spring preloaded? Or does the preloading of the spring happen when the spring is in contact with the wire prior to activation of the leadscrew?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3, 5, 6, 7, 8, 9, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Schwanz, USP 4,227,426.

Re clms 1, 3, 5, 6, 7, 8, 9, 18 and 19, Schwanz disclose a leadscrew assembly comprising:

- A leadscrew operable to rotate about a rotational axis to linearly drive a driven structure comprising:
 - An elongated cylindrical shaft (2, Figure 2, see examiners note)
having an outer lateral surface and a rotational axis (center line)

Art Unit: 3682

- A lead screw thread comprising a thread wire (3) helically wrapped in spaced apart turns upon the lateral surface of the elongated shaft (2)
- A hollow drive nut housing (6) affixed to the driven structure and comprising:
 - A nut bore (hole which the shaft extends through, see Figure 2) having an unthreaded inner surface with the leadscrew being inserted through the nut bore, the nut bore being sized such that the leadscrew may rotate therein about the rotational axis
 - A spring pin (7) affixed to the drive nut housing (6) and spanning across the nut bore (see Figure 2) to engage the leadscrew thread.
- (3)
 - Wherein the spring pin (7) has a first end (near 8), a second end (near 9) and a central portion (running between the two ends)
 - Wherein the ends (near 8,9) are affixed to the drive nut housing (the ends go around the housing, see Figure 2)
 - Wherein the drive nut comprises a first spring pin retainer (11) and an oppositely disposed second spring pin retainer (10)
 - Wherein the retainers comprise openings in the nut (see Figure 2)

Art Unit: 3682

- The central portion spanning an arc across an interior of the nut bore to engage the leadscrew thread (the central portion of the spring pin at 8 spans an arc to engage the thread, see Figure 2)
- Wherein the drive nut housing (6) has an access point opening (where the central portion of the pin engages the wire, see Figure 2) through which the spring pin (7) is accessible from an exterior of the drive nut housing (6) and providing clearance for the spring pin (7)
- Wherein the spring pin (7) contacts the leadscrew thread over a portion of a single turn (the pin only contacts a portion of the thread during a full turn)
- Wherein the spring pin (7) is preloaded (in contact with the thread) to ensure positive contact between the spring pin (7) and the leadscrew thread (3)
- A motor (5) rotationally drives the leadscrew (via the drive nut 6)

**The examiner notes that it is understood that Schwanz discloses a wire as the shaft however a shaft does not have to be a rigid structure according to the claim.

Furthermore, when the wire is in the nut bore it is indeed an elongated "straight" shaft.

If applicant wish to define a shaft as a "rigid" member see below.

Claim Rejections - 35 USC § 103

Art Unit: 3682

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwanz, USP 4,227,426, in view of Devenyi, USP 5,636,549.

Re clms 1-9, Schwanz disclose a leadscrew assembly comprising:

- A leadscrew operable to rotate about a rotational axis to linearly drive a driven structure comprising:
 - An elongated cylindrical shaft (2, Figure 2, see examiners note) having an outer lateral surface and a rotational axis (center line)
 - A lead screw thread comprising a thread wire (3) helically wrapped in spaced apart turns upon the lateral surface of the elongated shaft (2)
- A hollow drive nut housing (6) affixed to the driven structure and comprising:
 - A nut bore (hole which the shaft extends through, see Figure 2) having an unthreaded inner surface with the leadscrew being inserted through the nut bore, the nut bore being sized such that the leadscrew may rotate therein about the rotational axis

Art Unit: 3682

- A spring pin (7) affixed to the drive nut housing (6) and spanning across the nut bore (see Figure 2) to engage the leadscrew thread (3)
 - Wherein the spring pin (7) has a first end (near 8), a second end (near 9) and a central portion (running between the two ends)
 - Wherein the ends (near 8,9) are affixed to the drive nut housing (the ends go around the housing, see Figure 2)
 - Wherein the drive nut comprises a first spring pin retainer (11) and an oppositely disposed second spring pin retainer (10)
 - Wherein the retainers comprise openings in the nut (see Figure 2)
 - The central portion spanning an arc across an interior of the nut bore to engage the leadscrew thread (the central portion of the spring pin at 8 spans an arc to engage the thread, see Figure 2)
- Wherein the drive nut housing (6) has an access point opening (where the central portion of the pin engages the wire, see Figure 2) through which the spring pin (7) is accessible from an exterior of the drive nut housing (6) and providing clearance for the spring pin (7)

Art Unit: 3682

- Wherein the spring pin (7) contacts the leadscrew thread over a portion of a single turn (the pin only contacts a portion of the thread during a full turn)
- Wherein the spring pin (7) is preloaded (in contact with the thread) to ensure positive contact between the spring pin (7) and the leadscrew thread (3)
- A motor (5) rotationally drives the leadscrew (via the drive nut 6)

Schwanz does not disclose a rigid drive shaft, a spacer wire having a size smaller than that of the thread wire and helically interwrapped about the shaft with the thread wire and that the thread wire has a circular cross section.

Devenyi teaches that a rigid drive shaft can be used in place of a flexible drive wire (applicant has made a rigid shaft and a flexible shaft functional equivalents in his past disclosure C1/L50-54), a spacer wire (23) having a size smaller than that of the thread wire (22) and helically interwrapped about the shaft (24) with the thread wire (22) and that the thread wire (22) has a circular cross section (Figure 3) for the purpose of providing a leadscrew assembly that is inexpensive and can be made with simple and easily workable components (C1/L35-41 and C1/L44-59).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Schwanz and provide a rigid drive shaft, a spacer wire having a size smaller than that of the thread wire and helically interwrapped about the shaft with the thread wire and that the thread wire has a circular cross section,

Art Unit: 3682

as taught by Devenyi, for the purpose of providing a leadscrew assembly that is inexpensive and can be made with simple and easily workable components.

8. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwanz, USP 4,227,426, in view of Devenyi, USP 5,636,549 and further in view of Pan, USP 6,459,844.

Re clms 10 and 11, Schwanz in view of Devenyi discloses all of the claimed subject matter as described above.

Schwanz in view of Devenyi does not disclose that the drive structure includes a linear slide mechanism to which the drive nut housing is affixed so that the drive nut housing does not rotate and that an optical filter is supported on the linear slide mechanism.

Pan teaches a drive structure that includes a linear slide mechanism (18) to which the drive nut housing (30) is affixed so that the drive nut housing (30) does not rotate and that an optical filter (12) is arranged on the linear slide mechanism (18) for the purpose of transmitting the movement of a leadscrew to the slide mechanism to move the filter (C2/L53-55) so that the linear position of the filter can be varied.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Schwanz in view of Devenyi and provide a drive structure that includes a linear slide mechanism to which the drive nut housing is affixed so that the drive nut housing does not rotate and that an optical filter is arranged on the linear slide mechanism, as taught by Pan, for the purpose of transmitting the movement

Art Unit: 3682

of a leadscrew to the slide mechanism to move the filter so that the linear position of the filter can be varied.

9. Claims 12-15, 17, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schwanz, USP 4,227,426, in view of Devenyi, USP 5,636,549.

Re clms 12-15, 17, 20 and 21, Schwanz disclose a leadscrew assembly comprising:

- A leadscrew operable to rotate about a rotational axis to linearly drive a driven structure comprising:
 - An elongated cylindrical shaft (2, Figure 2, see examiners note) having an outer lateral surface and a rotational axis (center line)
 - A lead screw thread comprising a thread wire (3) helically wrapped in spaced apart turns upon the lateral surface of the elongated shaft (2)
- A hollow drive nut housing (6) affixed to the driven structure and comprising:
 - A nut bore (hole which the shaft extends through, see Figure 2) having an unthreaded inner surface with the leadscrew being inserted through the nut bore, the nut bore being sized such that the leadscrew may rotate therein about the rotational axis

Art Unit: 3682

- A spring pin (7) affixed to the drive nut housing (6) and spanning across the nut bore (see Figure 2) to engage the leadscrew thread (3)
 - Wherein the spring pin (7) has a first end (near 8), a second end (near 9) and a central portion (running between the two ends)
 - Wherein the ends (near 8,9) are affixed to the drive nut housing (the ends go around the housing, see Figure 2)
 - Wherein the drive nut comprises a first spring pin retainer (11) and an oppositely disposed second spring pin retainer (10)
 - Wherein the retainers comprise openings in the nut (see Figure 2)
 - The central portion spanning an arc across an interior of the nut bore to engage the leadscrew thread (the central portion of the spring pin at 8 spans an arc to engage the thread, see Figure 2)
- Wherein the drive nut housing (6) has an access point opening (where the central portion of the pin engages the wire, see Figure 2) through which the spring pin (7) is accessible from an exterior of the drive nut housing (6) and providing clearance for the spring pin (7)

Art Unit: 3682

- Wherein the spring pin (7) contacts the leadscrew thread over a portion of a single turn (the pin only contacts a portion of the thread during a full turn)
- Wherein the spring pin (7) is preloaded (in contact with the thread) to ensure positive contact between the spring pin (7) and the leadscrew thread (3)
- A motor (5) rotationally drives the leadscrew (via the drive nut 6)

Schwanz does not disclose a rigid drive shaft, a spacer wire having a size smaller than that of the thread wire and helically interwrapped about the shaft with the thread wire and that the thread wire has a circular cross section.

Devenyi teaches that a rigid drive shaft can be used in place of a flexible drive wire (applicant has made a rigid shaft and a flexible shaft functional equivalents in his past disclosure C1/L50-54), a spacer wire (23) having a size smaller than that of the thread wire (22) and helically interwrapped about the shaft (24) with the thread wire (22) and that the thread wire (22) has a circular cross section (Figure 3) for the purpose of providing a leadscrew assembly that is inexpensive and can be made with simple and easily workable components (C1/L35-41 and C1/L44-59).

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Schwanz and provide a rigid drive shaft, a spacer wire having a size smaller than that of the thread wire and helically interwrapped about the shaft with the thread wire and that the thread wire has a circular cross section,

Art Unit: 3682

as taught by Devenyi, for the purpose of providing a leadscrew assembly that is inexpensive and can be made with simple and easily workable components.

Schwanz in view of Devenyi does not disclose that the drive structure includes a linear slide mechanism to which the drive nut housing is affixed so that the drive nut housing does not rotate and that an optical filter is supported on the linear slide mechanism.

Pan teaches a drive structure that includes a linear slide mechanism (18) to which the drive nut housing (30) is affixed so that the drive nut housing (30) does not rotate and that an optical filter (12) is arranged on the linear slide mechanism (18) for the purpose of transmitting the movement of a leadscrew to the slide mechanism to move the filter (C2/L53-55) so that the linear position of the filter can be varied.

It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the teachings of Schwanz in view of Devenyi and provide a drive structure that includes a linear slide mechanism to which the drive nut housing is affixed so that the drive nut housing does not rotate and that an optical filter is arranged on the linear slide mechanism, as taught by Pan, for the purpose of transmitting the movement of a leadscrew to the slide mechanism to move the filter so that the linear position of the filter can be varied.

Response to Arguments

10. Applicant's arguments with respect to claims 1-15 and 17-21 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 3682

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Pilkington whose telephone number is (571) 272-5052. The examiner can normally be reached on Monday-Friday 8:00AM-4:00PM.

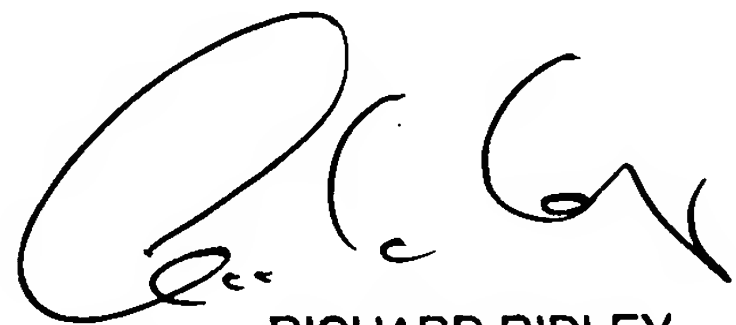
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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2/19/07



RICHARD RIDLEY
SUPERVISORY PATENT EXAMINER